

## **REMARKS**

After entry of the present amendment claims 1, 3-10, and 13 will be pending in the application. Claims 2, 11, and 12 have been canceled. Independent claim 13 was added. Claims 1 and 3 have been amended to more clearly define the invention as originally claimed.

### ***Specification***

The specification has been amended to ensure consistent use of terminology and to labeling of reference numerals. Formal drawing is being submitted to complete the filing requirements in this regard.

### ***Claims***

Claims 1-8, 10-12 stand rejected under 35 U.S.C. §103 (a) as being unpatentable over the United States Patent No. 5,085,819 to Satake et al. (the Satake Patent), in view of the United States Patent No. 5,882,750 to Mink et al. (the Mink Patent). Claim 9 stand rejected under 35 U.S.C. §103 (a) as being unpatentable over the United States No. 5,904,888 to Hayes et al. (the Hayes Patent).

Independent claim 1 stands rejected under 35 U.S.C. §103 (a) as being unpatentable over the Satake Patent, in view of the Mink Patent. The invention as claimed in claim 1 defines over the prior art or any combination thereof by mixing granules of a thermoplastic **12** with a powder of amorphous silica **14** to combine the thermoplastic **12** and amorphous silica **14** into a compound. Even if the Satake Patent teaches the use of a silica as a component for a filler when making a thermoplastic compound, it has significant structural difference from the type of silica disclosed by the Applicant. Unlike the silica disclosed in the Satake Patent, which has crystal structure and known to be of a low-viscosity, the Applicant's invention discloses the amorphous silica, which has a non-crystal structure and considered as one of high-viscosity.

According to the Federal Circuit, "obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, *absent some teaching, suggestion or incentive* supporting the combination." *ACS Hospital systems, inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 9Fed. Cir. 1984). The mere fact that references *can* be combined or modified does not

render the resultant combination obvious, unless the prior art also suggest the desirability of the combination. *In re Kotzab*, 217 f.3d 1365, 1371, 55 USPQ2d 1313, 1318 (Fed. Cir. 2000).

According to the Federal Circuit, "there are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art." *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998) (The combination of the references taught every elements of the claimed invention, however without a motivation to combine, a rejection based on a *prima facie* case of obvious was held improper. MPEP § 2143.01

According to the Federal Circuit in *In re Fine*, the claims were directed to a system for detecting and measuring minute quantities on nitrogen compounds comprising a gas chromatograph, a converter which converts nitrogen compounds into nitric oxide by combustion, and a nitric oxide detector. The primary reference disclosed a system for monitoring sulfur compounds comprising a chromatograph, combustion means, and a detector, and the secondary reference taught nitric oxide detectors. The examiner and Board asserted that it would have been within the skill of the art to substitute one type of detector for another in the system of the primary reference, however the court found there was no support or explanation of this conclusion and reversed. *In re Fine*, 837 f.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Similarly, the Satake patent teaches mixing a first polymer, i.e. melt stable PTK (polyarylene thioether-ketone) in the form of powder and glass fibers (GF) of chopped strands, i.e. silica, known by those skilled in the art to have a crystal structure and known to be of a low-viscosity, and a second polymer PPPS (poly p-phenylene sulfide) in the form of a crystalline material. The Satake Patent does not teach or suggest mixing granules of a thermoplastic with a *powder of amorphous silica* to combine the thermoplastic and amorphous silica into a compound.

The Mink Patent, on the other hand, discloses the amorphous silica used as a filler. The Mink Patent, however, does not teach or suggest, for example, mixing granules of a thermoplastic with a powder of amorphous silica to combine the thermoplastic and amorphous silica into a compound, followed by adding the compound into an extruder. The Mink Patent does not teach or suggest heating the compound in the extruder to reach a viscous condition to form a homogenous compound, extruding the compound through the extruder to form a strand of the compound, cooling the strand into a solid, chopping the strand into pellets. Furthermore, the Mink Patent does not teach or suggest pouring the pellets into a barrel of a molding machine, heating the barrel of the molding machine to turn the pellets into a viscous paste.

Similar to facts from *In re Fine*, wherein the primary reference disclosed a system for detecting and measuring minute quantities on nitrogen compounds comprising .....a gas chromatograph, a converter which converts nitrogen compounds into nitric oxide by combustion, and a nitric oxide detector, and the secondary reference taught nitric oxide detectors, wherein the examiner and Board asserted that it would have been within the skill of the art to substitute one type of detector for another in the system of the primary reference, in the present case, the examiner argues that it would have been prima facie obvious to one skilled in the art to use the Mink's Patent amorphous silica as the powdered filler in the Satake's Patent molding process.

Similar to the decision in *In re Fine*, wherein the court found that there was no support or explanation of this conclusion and reversed, there is no support or explanation why it would be obvious to use the amorphous silica in the molding process taught by the Satake Patent, whereby only silica, having crystal structure and known to be of a low-viscosity, was disclosed. When mixing a powder with a material having low-viscosity, like the silica taught by the Satake Patent, there is a greater likelihood that the mixture will be less homogeneous, as compared to a mixture of a powder having non-crystal structure, such as the Applicant's amorphous silica, which is considered as one of high-viscosity with a granular material, i.e. the thermoplastic material. Unlike the molding process taught by the Satake Patent, the

homogeneity of the present invention provides a more even distribution of the thermoplastic material within the mixture for improved heat resistant properties of a compound produced by the applicant's inventive method.

In rejecting independent claims 1, 10, and 12, the Examiner has applied the teaching of the process of making a heat resistant composition combining two polymers, with one of them in the form of powder with the silica having crystal structure in the Satake Patent to the product containing the amorphous silica in the Mink Patent to arrive at the present invention. The Mink teaches the product containing amorphous silica as the filler and does not teach or suggest each and every step of the Applicant's process. There is no teaching, motivation, or suggestion to combine the references. Hence, a *prima facie* case of obviousness cannot be established. This requirement is set forth in the MPEP:

#### **2143.03 All Claim Limitations Must Be Taught or Suggested**

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

#### **2142 Legal Concept of *Prima Facie* Obviousness**

...The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness...

#### **ESTABLISHING A *PRIMA FACIE* CASE OF OBVIOUSNESS**

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art,

and not be based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP §2143-§2143.03 for decisions pertinent to each of these criteria. The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

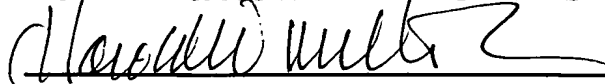
Adding the amorphous silica of the Mink Patent to the composition formed by the process of the Satake Patent will add additional powder to the composition thereby reducing likelihood of even distribution of the amorphous silica relative to the thermoplastic material within the mixture reducing heat resistant properties of the composition. On the other hand the granular material, i.e. thermoplastic mixed with the powder of amorphous silica to the compound, as disclosed by the Applicant, and further used in forming a part, i.e. fuel tank, increases heat resistant properties of the compound thereby increasing likelihood of even distribution of the amorphous silica relative to the thermoplastic material within the compound.

For these reasons, the Applicant respectfully submits that independent claims 1, 10 and 13 are in condition for allowance. All of the rejections have been addressed by amendments.

Applicant believes the application is now in condition for allowance, which allowance is respectfully solicited. Applicant believes that no additional fees are required, however, the Commissioner is authorized to charge our Deposit Account No. 08-2789 for any additional fees or credit the account for any overpayment.

**Respectfully submitted,**

**HOWARD & HOWARD ATTORNEYS**



**Harold W. Milton, Registration No. 22,180**

Howard and Howard Attorneys, P.C.

The Pinehurst Office Center, Suite 101

39400 Woodward Ave.

Bloomfield Hills, MI 48304-5151

(248) 723-0352

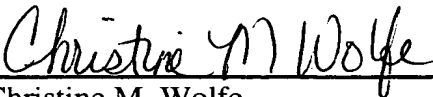
**March 31, 2004**

**Date**

Applicant: Beaty  
Serial No.: 10/056,764  
Amendment dated March 31, 2004  
Reply to Office Action dated October 2, 2003  
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**CERTIFICATE OF MAILING**

I hereby certify that this **Amendment** for U.S. Serial No.: 10/056,764 filed November 5, 2002 is being deposited with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to the Commissioner for Patents, MAILSTOP AMENDMENT, P.O. Box 1450, Alexandria, Virginia 22313-1450, on **March 31, 2004.**

  
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Christine M. Wolfe